



TREATMENT OF UTERINE PROLAPSE IN COWS BY NEW METHOD (UTERINE RUBBER BALL)

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Abstract

One of the main problems in obstetrics is uterine prolapse in cattle. In this study, developed a new method of treating this case, by inserting rubber ball deep into a uterine horn of an animal suffering from uterine prolapse. When used this method, the prolapse was completely recovery in 15/18 cows. In conclusions the treated cows by Uterine Rubber Ball method, have a good prognosis, the technique has a low cost and easy to apply.

Key words : cow; uterine prolapse; uterine rubber ball.

Introduction

The uterine prolapses mean coming out of the uterus and vagina from their normal position through the vaginal opening (Powell, 2007; Bhattacharyya *et al.*, 2012), in the three degree of uterine prolapse refers to the protrusion of the uterus into out (complete uterine prolapse) (Philip *et al.*, 2007). This case which happens instantly after parturition and sometimes up to several hours later (Roberts, 1971). Also uterine prolapse might initiated after uterine inertia. The precise causes of the uterine prolapse is unknown, but a many factors may have associated such as: reduced uterine tone, high straining, retained placenta, tympany and high estrogen content feed (Hanie *et al.*, 2006). The cow which suffering from uterine prolapse may became pregnant in 40%, if treated in early period, therefore the success of treatment depends on duration, degree of the case, wound and contamination (Tyagi and Singh, 2002).

The treatment of uterine prolapse according to the case history and degree, yet the veterinarians trying management of this case by many methods commonly present like surgical management (Dar *et al.*, 2014; Patra *et al.*, 2014). Furthermore, recently the Ishii *et al.*, (2010) that were using a tractor to dealing of prolapsed. As well as the many other methods which described by White (2007) and Potter (2008). The goal of this study was the

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treatment of uterine prolapse by a new method through insertion of the Uterine Rubber Ball (URB) inside the uterus to increase its size and thus prevent uterine prolapse through the inner pelvic orifice. The treated cows showed good recovery and without recurrence or any complications, the URB was removed after three days.

Materials and Methods

Twenty-two Iraqi local breed cows (4-8 years old), with 3rd degree uterine prolapse were selected according to Philip *et al.*, (2007). All animals were suffering from complete uterine prolapse immediately after birth, severely stressed and some were lying on the ground. The uterus was contaminated and the womb was soaked due to bleeding. All cases were treated in the veterinary clinic by epidural anesthesia of lidocaine hydrochloride 2% (ANASED[®], Lloyd Laboratories, Shenandoah, IA, USA) (20 ml/ animals) with 2 ml (40mg/cow) xylazine hydrochloride 2% (NICOSIA INTERNATIONAL[®], Xylazine Xzin, India) was injected intramuscularly. The permanent of fetal membrane was carefully separated avoiding damage to maternal caruncles and bleeding and removed the debris tissue by washing and cleaning the prolapsed uterus with water. The prolapsed mass was thoroughly irrigated with 1:1000 potassium permanganate solutions with applied the other management steps which described by Pranab *et al.*, (2017). The protruded uterus was pushed through the vagina by manual pressure to

restore normal position, twelve cows (group A) treated with a surgical management by pushed the uterus back into the pelvic cavity and Buhner's sutures were applied across the vulva, yet the ten cows (group B) used the URB method.

Methodology Uterine Rubber Ball (URB)

To prevent further complications, the URB was applied as a new method based on the principle of increasing the size of the uterus within the abdominal cavity by following steps:

1. Sterilization of the URB and medical catheter for 1 hour with 2% glutaraldehyde (LABORATORIES ANIOS™ Steranios 2%, England) according to manufacturer instructions.
2. Lubricating surface of the URB with 10 ml syringes of cephapirin benzathine (500mg) (ALPHARABI®, wembecure, Syria).
3. The URB was carefully inserted into the uterus with leaving the free end of the medical catheter to the outside of the body.
4. By using a manual blower to inflate the URB with controlling of uterine size by rectal palpation.
5. Blocking the free end of the medical catheter using the catheter clamp.
6. After three days, remove the catheter clamp to evacuate the URB, then pull it out, without causing discomfort to the cow.
7. The systemic antibiotic was giving during all treatment days with utilizing intramuscularly injection of the procaine penicillin with 10 mg/kg bodyweight dihydrostreptomycin sulphate equivalent to 1 ml per 25 kg bodyweight (10ml/ cow) (Norbrook®, pen and strep injection, late lord ballyedmond, Northern Ireland, UK) once daily for up to three days according to company recommended.
8. This method can repeat by presence of low contractions using a new URB for another period.

Designing of uterine rubber ball (URB)

The URB is designed locally by modified the Uterine Support device of Guhle and Guhle (1994) in following steps:

1. The rubber ball used in this experiment was of type (LLQ®, exercise ball for fitness and yoga- 25cm, China)*) includes a stopper to resist of the high pressure, with a straw for inflation. (Fig. 1-1,2,3)
2. Insertion the straw in the rubber ball stopper. (Fig. 1-4, 5)

3. Fixing medical catheter (medical disposable suction catheter, model TL017001&TL017002, Zhongshan, China) with rubber ball straw. (Fig. 1-5)
4. Fixing the catheter clamp near the free end of the medical catheter (Figure 1-5), with manual blower as in the Fig. (1-6).

* Product description of LLQ®, exercise ball

1. Made of nontoxic medical grade elastic polyvinyl chloride (PVC).
2. Burst Resistance, soft and the ball can withstand up to 1000 kg without bursting.
3. It's designed to safely deflate instead of popping like a balloon when it rolls over sharp objects or is compressed under a heavy load due to Uniform PVC casing thickness.
4. Its durable 0.2 cm casing with a thickness that remains constant all throughout, even when inflated or under excessive stress. This results in a greater resistance to punctures on all sides and prevents air from leaking from the ball.
5. The ball surface has a smooth matte surface, Anti-Slip and no adhesion with other material.

Statistical analysis

Statistically stat view (IBM SPSS program package, Version 23) analyzed data. Each value (mean or proportion) was tested by a pair. When the population assessed showed a normal distribution, differences in mean values were tested by the t-test.

Results and Discussion

Table 1 show compartment two treatment method, the surgical management of group A, and by URB method of group B. The Re-treatment rates were not significantly different between each groups 33.33% (4/12) in group A and 30% (3/10) in group B. However, the recovery and conception rate of cow with used the URB was with a high significant in $P < 0.05$ than a surgical management which were 80% (8/10), 58.33% (7/12), 7/8 (87.5%), 4/7 (57.14%)80% respectively.

The different methods of treating the uterine prolapse were described by Roberts (1986); Miesner and Anderson (2008) and Kumar *et al.*, (2015), yet no reports were made using the URB method for prevention recurrence. As most methods rely on one principle is the closure of vulva to prevent the projected of the uterus such as: manually reposition the uterus, and then place pins through the vulva (Guhle and Guhle,1994).

The efficacy of treatment by URB were assessed based on recurrence of the prolapses and subsequent

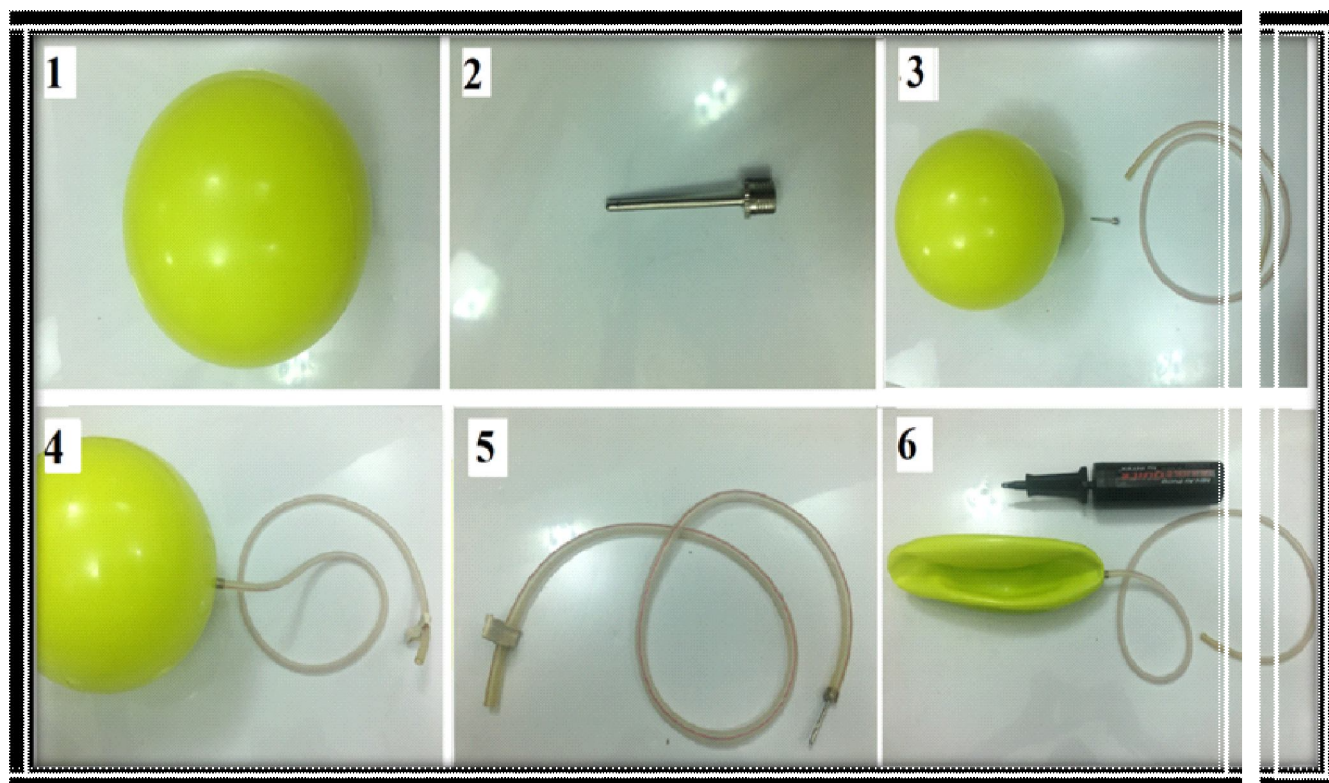


Fig. 1: Uterine Rubber Ball (URB) 1. Rubber ball, 2. Ball straw, 3 Rubber ball, straw and catheter 4. Inserted the straw in the rubber ball stopper, 5. Medical catheter with clamp in free end of the catheter, 6. Final shape with manual blower.

conception following insemination. Perusal of revealed that after treatment by URB. This result showed table 1 no recurrence of the prolapses with good prognosis after treatment by utilizing URB, and without serious damage to the uterus. also referred to the cows with uterine prolapse which have a good chance of surviving if treated, in the current method there was no need to suture. Therefore, the occurrence of inflammation or scar in the valva is not observed and these animals became healthy with plenty of milk production and normal fertility.

The percentage success of complete recover by used URB in our study was a very high 80% and without any recurrence of the prolapses or any damage of the uterus and good prognosis of these animals, these finding were agreement with Gardner *et al.*, (1990) which referred to the cows with uterine prolapse have a good chance of surviving and no puncturing of any kind, and study of (Jubb *et al.*, (1990) there were founder the survival rate of 72.4% in dairy cows, Also the tractor method describes by Ishii *et al.*, (2010) showed that recovery rate were 71.4% (15/21) in first calving cows.

The URB method reduced the infection or pain to animal, this finding disagreement with result of Hanie *et al.*, (2006) which may causes fully replaced the tips of the uterine horns to normal position and developed of complications when infections, necrosis, lacerations,

Table 1: Survival parameter of surgical management (Buhner's sutures) with Uterine Rubber Ball (URB) method.

	Buhner's sutures (n=12)	URB (n=10)
Re- treatment	4/12 (33.33%) ^a	3/10 (30%) ^a
Complete recovery rat (%)	7/12 (58.33%) ^a	8/10 (80%) ^b
Conception rat (%)	4/7 (57.14%) ^a	7/8 (87.5%) ^b

Different letters indicate significant difference ($P < 0.05$).

hemorrhage and shock. As well as the Buhner's sutures which described by Noakes *et al.*, (2001) were applied across vulva, the animal was able to recovered fully, but this method is a painful condition of the animal, and leading to a gradual deterioration in the health of the animal and eventually death. Even if the treatment is effective, and can lead to a secondary problem of infection Kumar *et al.*, (2018). Yet, the pins method even if the treatment is effective, the piercing of the skin with pins can lead to a secondary problem of infection. (Patra *et al.*, 2014).

Conclusion

The conclusion of this study it was that the animals with uterine prolapse could be managed by URB method with a systemic antibiotic to prevent secondary uterine infections, without serious damage to the uterus, no recurrence of the prolapses with good prognosis, and this method there was no need to suture, as well as the URB

has low cost and easy to apply.

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